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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/966,557	09/27/2001	Richard Charles Allen	55871US002	4597
32692	7590	11/04/2003	EXAMINER	
3M INNOVATIVE PROPERTIES COMPANY PO BOX 33427 ST. PAUL, MN 55133-3427			CURTIS, CRAIG	
			ART UNIT	PAPER NUMBER
			2872	

DATE MAILED: 11/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	09/966,557	ALLEN ET AL.
	Examiner	Art Unit
	Craig H. Curtis	2872

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 11 August 2003.

2a) This action is FINAL.                    2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-26 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 1-26 is/are rejected.

7) Claim(s) \_\_\_\_\_ is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some \* c) None of:

- Certified copies of the priority documents have been received.
- Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
- Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

#### Attachment(s)

1)  Notice of References Cited (PTO-892)                    4)  Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_

2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)                    5)  Notice of Informal Patent Application (PTO-152)

3)  Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_                    6)  Other: \_\_\_\_\_

Art Unit: 2872

## Detailed Action

### *Disposition of the Instant Application*

- This Office action is responsive to Applicants' Response filed on 11 August 2003, which has been made of record in the file as Paper No. 9.
- Claims 1-26 are currently pending in the instant application.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. **Claims 1-4, 6-12, and 18-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shingaki et al. (EP 0487047 A2) in view of Mitsutake et al. (5,568,283).**

Shingaki et al. disclose (See Fig. 1) the invention as claimed: said invention comprising, *inter alia*, a polarizing element, as well as, implicitly, a method of polarizing light--including wherein said polarizer element (1) has a polarization axis (inherent), wherein said polarizer element preferentially transmits light having a polarization that is parallel to said polarization axis (inherent); and a separate polarization rotator element (5) and configured and arranged to rotate the polarization of at least a portion of the light that is transmitted by the polarizer element by an angle of at least 5

Art Unit: 2872

degrees (col. 5, II. 5-10); wherein said polarizer element is a first polarizer element, said invention further comprising a second polarizer element (3) having a polarization axis that differs from the polarization axis of the first polarizer element by at least 5 degrees (col. 6, II. 23-27) and wherein said polarization rotator element is disposed between said first and second polarizer elements (See Fig. 1); wherein said polarization rotator element is configured and arranged to rotate the polarization of at least a portion of the light transmitted by the first polarizer element to within 5 degrees of the polarization axis of the second polarizer element (inherent); wherein the polarization rotator element is configured and arranged to rotate the polarization of at least a portion of the light transmitted by the first polarizer element to the polarization axis of the second polarizer element (again, inherent); further comprising an alignment layer disposed between the polarizer element and the polarization rotator element (col. 1, II. 26-32), alignment layers comprising polymeric material that has been photoaligned being well-known in the art; either surface of the polarizer element facilitates (by orientation alone) alignment of said polarization rotator element--**EXCEPT FOR** an explicit teaching wherein said invention is a film.

Mitsutake et al., however, disclose a filmic apparatus and, by extension, a method of polarizing light. See, e.g., Figs. 3, 5, and 6. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the apparatus and implicit method teachings of Shingaki et al. such that said apparatus and method be constituted in the form of a film, as motivated by the explicit and implicit teachings of same by Mitsutake et al., for at least the purpose of realizing said apparatus in a more compact volume than would be the possible if elements comprising said apparatus and constituting said method were disposed separately with respect to one another.

Art Unit: 2872

Mitsutake et al. further teach, with specific reference to claim 9, a polarization rotator element (308) that comprises a liquid crystal material. See col. 5, ll. 56-58. It is noted, with reference to claims 10-12, that liquid crystal material exhibits, to however small an extent, both light absorption as well as diffusion, and that in order for said apparatus as a whole to function properly, said light absorbing material must be aligned within said polarization rotator element to substantially absorb light having a first polarization and to substantially transmit light having a second polarization orthogonal to the first polarization.

With regard to claims 18-20, the combination discloses a film comprising the recited elements in the same manner as that taught in these claims of the instant invention.

With regard to claims 21-24, the combination discloses a display device as claimed. See above.

**2. Claims 16 & 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shingaki et al. (EP 0487047 A2) in view of Mitsutake et al. (5,568,283).**

The combination discloses the invention as claimed **EXCEPT FOR** explicit teachings wherein: the polarization rotator element rotates the polarization of the portion of the light that is transmitted by the polarizer element by an angle in the range of 40 to 50 degrees; or by an angle in the range of 85 to 95 degrees. Rotation of polarization of light by angles in these ranges, however, is disclosed in the prior art. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the invention such that its polarization rotator element rotate the polarization of the portion of the light that is transmitted by the polarizer element by an angle in the range of 40 to 50 degrees or 85 to 95 degrees, such teaching being well-known in the optical art, for at least the purpose

Art Unit: 2872

of optimizing contrast properties of light or other characteristics associated with said invention, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

**3. Claims 5 & 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shingaki et al. (EP 0487047 A2) in view of Mitsutake et al. (5,568,283), as applied above with respect to, inter alia, claim 1, and further in view of Hansen et al. (5,986,730).**

The combination discloses the claimed invention as set forth above **EXCEPT FOR** explicit teachings wherein: said first polarizer element comprises a reflective polarizer and the second polarizer element comprises an absorbing polarizer; wherein said polarizer element of claim 1 comprises either a reflective polarizer (as recited in claim 13), an absorbing polarizer (as recited in claim 14), or a reflective polarizer and an absorbing polarizer (as recited in claim 15). Applicants are hereby apprised that criticality has not been associated with any one of these teachings with respect to the others (i.e., said polarizer element comprising a reflective polarizer vs. its comprising an absorbing polarizer vs. its comprising a reflective polarizer *and* an absorbing polarizer (emphasis added)).

Hansen et al., however, disclose an absorptive polarizer as one example of a polarizing means and, further, provide an explicit teaching wherein [a]ny means for polarizing the light so that light having mostly one polarization orientation is passed may be used. Col. 7, ll. 23. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the invention of the combination such that its polarizers (first or first and second) variously comprise, individually or in

Art Unit: 2872

combination, reflective and absorptive polarizers, as taught by Hansen et al., for at least the purpose of achieving a desired polarization state for light traversing said invention.

### *Response to Arguments*

4. Applicants' arguments filed 11 August 2003 have been fully considered but they are not persuasive. Applicants initially argue that Mitsutake et al. "does not teach or suggest the recited film..." and given that the Examiner inadvertently directed Applicants' attention to Fig. 1 (in addition to Figs. 3 & 5) in the previous Office action, this is at least partially understandable. In the present Office action, however, the Examiner has appropriately directed Applicants' attention to Figs. 3, 5, and 6 of Mitsutake et al., in which figures various embodiments of filmic optical modulation devices are depicted.

As to the alleged lack of teaching by Mitsutake et al. of a single film having a polarizer element and a polarization rotator element, the Examiner contends that the combination (i.e., Shingaki et al. in view of Mitsutake et al.) does indeed disclose such a teaching, when account is taken of the fact that Shingaki et al. explicitly teaches a polarizer (1) and a halfwave plate (read: *polarization rotator*) (11), while Mitsutake et al. explicitly disclose, as addressed above, a filmic device that can reasonably be viewed as being a single film.

Applicants further assert that claims 2-5 and 26 recited that the film includes a second polarizer element, and that "...[n]one of the cited references teach or suggest a film with two polarizer elements and a polarization rotator element. The Examiner respectfully disagrees. Shingaki et al. explicitly discloses

Art Unit: 2872

two polarizer elements (viz., polarizer 1 and analyzer (read: polarizer) 3) and a polarization rotator (5), with Mitsutake et al. providing the teaching wherein, *inter alia*, said elements are disposed as a film.

Applicants next argue that the alignment layer 2 (read: 21 or 23) is not between the alleged polarization rotator element (5) and polarizer element (3). And while, as presented, this is indeed the case, Shingaki et al. explicitly, as set forth in the above-recited rejection of claim 6, wherein an alignment layer (21 or 23) is between an actual (as opposed to alleged) polarization rotator (5) and polarizer element (viz., polarizer 1, not 3).

With regard to Applicants assertion that Shingaki et al. fails to teach wherein the (read: a) surface of the polarizer element facilitates alignment of the polarization rotator element, the Examiner notes that the "...the polarizer element acts as an alignment layer for the polarization rotator element..." limitation currently is not recited in claim 8, and as such, the Examiner broadly interpreted the "...the surface of the polarizer element facilitates alignment..." claim language as encompassing the inherent teaching that the orientation of a surface of said polarizer element necessarily facilitates (read: enables) alignment of the polarization rotator element.

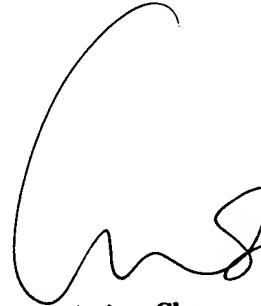
With regard to a polarizer element that preferentially transmits (read: is capable of transmitting) a substantial portion of light having a first circular polarization, please see FLC molecule layer 22 in Shingaki et al.

Art Unit: 2872

*Contact Information*

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Craig Curtis, whose telephone number is (703) 305-0776. The centralized facsimile telephone number for the USPTO is (703) 872-9306.

Any inquiry of a general nature regarding the status of this application should be directed to the Group receptionist, whose telephone number is (703) 308-0956.



**Audrey Chang**  
**Primary Examiner**  
**Technology Center 2800**

*C.H.C.*

Craig H. Curtis  
Group Art Unit 2872  
31 October 2003